

ABSTRACT OF THE DISCLOSURE

The present invention demonstrates that BMP-2/4
activates osteopontin gene transcription by removing Hoxc-8 binding
5 through Smad1 interaction with the Hoxc-8 DNA binding domain.
Since the DNA binding domain is conserved in all Hox and
homeodomain-containing proteins, Smad1 likely interacts with all
Hox or homeodomain-containing proteins. Furthermore, the present
invention reveals the Smad1-mediated transcriptional mechanism in
10 the BMP-2/4 signaling pathway and also provides information about
the transcriptional roles of the Hox genes during embryonic
development.